

Appl. No. 09/447,312
Reply to Office Action of September 19, 2005

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A method of adding packet ordering information to a plurality of data packets comprising:

applying error detection codes to each of the plurality of data packets; and

masking each of the plurality of data packets to which the error detection codes have been applied with a ~~corresponding~~ respective one of a plurality of packet ordering masks, the plurality of packet ordering masks having a known order, the masking being performed on a packet-by-packet basis in the known order.

2. (Currently Amended) The method of claim 1 wherein masking comprises exclusive or'ing each of the plurality of data packets with a corresponding one of the plurality of packet ordering masks.

3. (Currently Amended) The method of claim 1 wherein each of the plurality of data packets to which the error detection codes have been applied is masked with one of the plurality of packet ordering masks, the plurality of packet ordering masks and the known order being known by a receiver such that the receiver can discern a relative packet order using the plurality of packet ordering masks.

4. (Currently Amended) The method of claim 1 wherein the plurality of packet ordering masks comprises cryptographic keys.

5. (Currently Amended) The method of claim 1 wherein the plurality of packet ordering masks are masks other than cryptographic keys, the method further comprising prior to applying error detection, encrypting each of the plurality of data packets.

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6. (Currently Amended) The method of claim 1 wherein:
the plurality of data packets are to be transmitted in a network having a maximum latency variability; and

the plurality of packet ordering masks includes a sufficient number of packet ordering masks for a receiver to identify a correct order of two packets received out of order and received a distance apart in time less than or equal to the maximum latency variability.

7. (Currently Amended) A method of determining a packet order of a received packet comprising:

applying at least one packet ordering mask to the received packet in a known order from a list of packet ordering masks to find a current packet ordering mask that was previously used to mask the received packet, the list of packet ordering masks having the known order; and

when at least one older packet ordering mask exists in the list of packet ordering masks, the at least one older packet ordering mask occurring earlier in the known order than the current packet ordering mask, removing the at least one older packet ordering mask from the list of packet ordering masks.

8. (Currently Amended) The method of claim 7 wherein applying comprises:
applying a first packet ordering mask to the received packet to produce a first unmasked received packet;

checking the first unmasked received packet for errors; and

when errors in the first unmasked received packet are below a threshold, setting the current packet ordering mask to the first packet ordering mask.

9. (Original) The method of claim 8 wherein the received packet has had forward correction and masking applied thereto prior to transmission, and wherein checking comprises applying forward error correction.

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10. (Currently Amended) The method of claim 7 further comprising:
successively applying the packet ordering masks that remain on the list of ordering masks to the received packet; and
when after applying all of the list of packet ordering masks to the received packet, the current packet ordering mask is not found, discarding the received packet.

11. (Currently Amended) A method of determining the transmitted order of a received data packet relative to other received data packets comprising:
setting a temporary packet ordering mask equal to a next packet ordering mask in a list of packet ordering masks, the list of packet ordering masks having a known order indicating an order of packet transmission;
applying the temporary packet ordering mask to the received data packet to produce an unmasked received data packet;
checking the unmasked received data packet for errors;
repeating the previous actions until no errors are found when errors are found; and
setting a current packet ordering mask equal to the temporary packet ordering mask.

12. (Currently Amended) The method of claim 11 wherein the current packet ordering mask defines a relative transmission order of the received data packet.

13. (Previously Amended) The method of claim 12 further comprising:
if the received data packet is older than a previously received data packet, discarding the received data packet.

14. (Currently Amended) The method of claim 12 further comprising:
if the received data packet is not older than a previously received data packet, marking the current packet ordering mask as a most recently used mask.

15. (Currently Amended) The method of claim 12 wherein the list of packet ordering masks comprises cryptographic keys.

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16. (Currently Amended) A communications device comprising:
a packet receiver;
a mask store comprising a plurality of packet ordering masks having a known order, the known order representing an order of transmission of a plurality of packets;
an unmasking device coupled to the mask store and the packet receiver, the unmasking device being configured to unmask received packets by applying the packet ordering masks, one at a time and in the known order on a packet-by-packet basis, to the received packets; and
an error detection device coupled to the unmasking device, the error detection device being configured to detect errors in unmasked received packets.

17. (Currently Amended) The communications device of claim 16 further comprising a controller coupled to the mask store and the error detection device, the controller being configured to evaluate error information received from the error detection device, and further configured to command the mask store to provide packet ordering masks to the unmasking device.

18. (Cancelled)

19. (Original) The communications device of claim 16 wherein the mask store is a key generator capable of generating keys to decrypt encrypted packets.

20. (Currently Amended) The communications device of claim 16 wherein the mask store ~~includes a plurality of masks, and the mask store~~ is configured to operate as a circular buffer such that the plurality of packet ordering masks is used more than once.

21. (Currently Amended) The communications device of claim 20 wherein the mask store is configured to maintain a most recent mask pointer that points to a most recently used packet ordering mask.

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22. (Original) The communications device of claim 16 further comprising a decryptor coupled to the unmasking device, the decryptor being configured to decrypt unmasked packets using keys received from a key generator.

23. (Currently Amended) A communications device comprising:
a packet formatter adapted to receive data packets and configured to supply formatted packets;
a forward error device coupled to receive the formatted packets from the packet formatter and configured to apply error codes to the formatted packets;
a mask store comprising a plurality of packet ordering masks having a known order, said known order representing an order of transmission of a plurality of packets; and
a masking device coupled to the mask store and the forward error device and responsive thereto to apply the packet ordering masks, one at a time and in the known order on a packet-by-packet basis, to mask each of the formatted packets to which the error codes have been applied.

24. (Original) The communications device of claim 23 wherein the packet formatter is a data packet formatter.

25. (Original) The communications device of claim 23 wherein the packet formatter comprises a vocoder.

26. (Original) The communications device of claim 23 wherein the masking device comprises an encryptor, and the mask store comprises a key generator.

27. (Previously Amended) The communications device of claim 23 further comprising an encryptor coupled between the packet formatter and the forward error device, wherein the encryptor is configured to receive the formatted packets from the packet formatter, encrypt the formatted packets, and send encrypted formatted packets to the forward error device.